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AMS

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,497	08/17/2001	George Seaver	0729-007US1	6298

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EXAMINER

NGUYEN, CHAU M

ART UNIT PAPER NUMBER

2633

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/932,497	Applicant(s) SEAVER, GEORGE	
	Examiner Chau M Nguyen	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/24/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 9 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the target" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claims 9 and 22 recite the limitation "the total frame area" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Further, "... frame area " is not closely disclosed in the Specification.

3. Claims 27-30 are rejected under 35 U.S.C. 112, second paragraph, because a single claim which claims both an apparatus and the method steps of using the apparatus.

Claims 27-30 recite a method (including the step of providing the system of claim 1) while claim 1 recites as a system apparatus. In *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990). See MPEP 2173.05(p). Section II.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 27-30 are also rejected under 35 U.S.C. 101, because a single claim is directed to neither a "process" nor a "machine", but rather embraces or overlaps two different statutory classes on invention. See MPEP 2173.05(p). Section II.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 11, 12, 15, 24, 25, and 27-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Dishman et al. (Hereinafter "Dishman") (U.S. Pat. No. 6,271,953 B1).

As claims 1, 11, 12, 15, 24 and 25, Dishman discloses system for tracking and regulating an optical beam, comprising:

- a) at least one beam steering device (solid-state optical beam regulator) (element 72, fig. 1B) (col. 8, lines 3-4);
- b) an optical sensing device (element 73);
- c) a controller (130) for calculating control signals using beam information from the optical sensing device (col. 4, lines 41-46, lines 51-55 and col. 8, lines 6-10).

As claims 27-30, Dishman discloses a system and method of optically communicating in free space for metropolitan access to optical fiber networks, comprising:

A/ providing the system of claim 1, as described above.

B/ operating system to track and regulate at least one optical beam to provide duplex optical communications between long distance terminals such as ground stations and satellites, and also for moving targets as well. (col. 1, lines 6-10, and lines 50-55).

8. Claims 1, 2, 3, 5, 6, 9, 11, 12, 15, 16, 17, 24 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Pribil et al. (Hereinafter "Pribil") (U.S. Pat. No. 6,570,695 B1).

As claims 1, 11, 12, 15, 24 and 25, Pribil discloses system for tracking and regulating an optical beam over a range of frequencies greater than 1kHz, comprising:

a) at least one fiber-nutator (solid-state optical beam regulator) (element 5, fig. 1) (col. 2, lines 24-26 and lines 46-49);

b) an optical sensing device (element 10 and/or 11) (col. 2, lines 30-31);

c) a computer (18 and 14) for calculating control signals using beam information from the optical sensing device (col. 2, lines 39-41 and lines 56-60).

As claims 2, 3, 16 and 17, the fiber-nutator (beam regulator) of Pribil is a piezoelectrical device. In turn, this device is a stress-optic refractor (col. 2, lines 31-33 and col. 3, lines 41-51).

As claim 5, Pribil (fig. 1) shows a portion of the transmitted beam reflected from the reflected unit (5) for tracking and regulating the transmit beam (Abstract).

As claims 6 and 19, the fiber-nutator (5) (beam regulator) of Pribil acts to focus the beam or return the beam to a collimated state (col. 5, lines 45-47)

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4, 10, 13, 14, 18, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pribil (U.S. Pat. No. 6,570,695 B1) as applied to claims 1 and 15 above, and further in view of Dishman et al. (Hereinafter "Dishman") (U.S. Pat. No. 6,271,953 B1).

As claims 4, 10, 13, 14, 18, 23 and 26, Pribil fails to show beam regulator be capable to two-dimensional steering and at micro-radian accuracy (as cited in claims 10, 13, 14, 23 and 26). However, Dishman show beam steering device (52, Dishman, fig. 2) for performing two-dimension steering (Dishman, col. 7, lines 10-18). Therefore, it would have been obvious to one having ordinary skill in the art to use beam steering device as

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taught by Dishman into the optical system of Pribil in order to regulate and/or adjust the optical beam. One would have motivated for doing this since this process allows efficiency steering for optical free space with adequate beam steering control. (Dishman, col. 2, lines 38-42). Further, the combination of Pribil and Dishman discloses the claimed invention except for micro-radian accuracy. It would have been obvious since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re A11er*, 105 USPQ 233.

11. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pribil (U.S. Pat. No. 6,570,695 B1) as applied to claims 1 and 15 above, and further in view of Colbourne (U.S. Pat. No. 6,353,692 B1).

As claims 7 and 20, Pribil fails to shows the system including two refractors in series. However, Colbourne discloses two refractor arranged in series (Colbourne, fig. 5, col. 3, lines 63-67). Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the arrangement of the two refractors as taught by Colbourne into the system of Pribil in order to receive optical beam. One would have motivated for doing this since this arrangement provides high tolerance to misalignment of light passing there through (Colbourne, col. 4, lines 17-25).

12. Claims 8, 9, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pribil (U.S. Pat. No. 6,570,695 B1) as applied to claims 1 and 15 above, and further in view of Shelby (U.S. Pat. No. 5, 953,146 B1).

As claims 8 and 21, Pribil does not clearly show the optical sensing device is a CMOS image device. However, Shelby discloses optical communication system with the use of CMOS image sensor (detailed in fig. 2b) for tracking optical beam (Shelby, col. 1, lines 6-8 and col. 5, lines 54-61). Therefore, it would have been obvious to one having ordinary skill in the art to use CMOS image sensor as taught by Shelby into the system of Pribil in order to tracking an optical beam. One would have motivated for doing this since the use of a CMOS image sensor has at least two advantages in this context has at least two advantages: (1) pixels not impacted by the optical beam are eliminated from the subsequent summing step (see below); and (2) pixels which have been impacted by spurious electrical noise, (Shelby, col. 6, lines 20-26).

As claims 9 and 22, Shelby discloses the optical device senses a region of interest that is less than total frame area, so as to perform at a faster frame rates (Shelby, col. 5, line 63 – col. 6, line 4).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Arnold et al. (U.S. Pat. No. 6,347,001 B1) is cited to show free-space laser communication system.

Agranat et al. (U.S. Pat. No. 6,542,264 B1) is cited to show electro-holographic optical switch.

Miere (U.S. Pat. No. 6,556,324 B1) is cited to show device for controlling the beam alignment in satellite laser communication systems.

Willebrand (U.S. Pat. No. 6,239,888 B1) is cited to show terrestrial optical communication network fiber and free-space links which requires no electrical optical conversion between links.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau M. Nguyen whose telephone number is 703-305-8965. The examiner can normally be reached on Mon-Fri from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4726. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

C.M.N.


JASON CHAN
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